A REVISION OF THE GENUS *ANOPLODACTYLUS* TOGETHER WITH A NEW SPECIES FROM QUEENSLAND.

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(Text-figures 1-5.)

The interesting Pycnogonid, which forms the third species of *Anoplodactylus* recorded from the Australian coast, was collected by Mr. Melbourne Ward. For the opportunity of describing this specimen my thanks are due to Professor T. Thomson Flynn, to whom I am also indebted for much helpful criticism and for the use of his extensive literature.

The Genus *Anoplodactylus* (Wilson) established in 1878 now includes 39 named species and two forms which are referable to the genus but which have not received specific names. One of these, found off the south coast of Japan, was too immature for specific diagnosis (Ohshima). The other, taken near Yé, Burma, is stated to resemble closely *A. petiolatus*. Calman hesitated to extend the already wide distribution of *A. petiolatus* or to establish a new closely-related species on the evidence of but one specimen.

Cole in 1904 established the genus *Halosoma* but this has not retained its generic rank, having been transformed by Loman (1912) into a subgenus of *Anoplodactylus*. Seven members of this subgenus are now known, occurring in widely separated regions, viz.:

1. *Anoplodactylus* (*Halosoma*) *virid-intestinalis* Cole 1904, from the Californian coast.
2. *Anoplodactylus* (*Halosoma*) *lappa* Böhm 1879, from the coast of Mozambique.
3. *Anoplodactylus* (*Halosoma*) *exiguus* Dohrn 1881, from the Mediterranean Sea.
4. *Anoplodactylus* (*Halosoma*) *robustus* Dohrn 1881, from the Mediterranean Sea.
5. *Anoplodactylus* (*Halosoma*) *anarthrus* Loman 1908, from the Timor Sea.
6. *Anoplodactylus* (*Halosoma*) *haswelli* Flynn 1918, from Port Jackson, Australia.
7. *Anoplodactylus* (*Halosoma*) *derjugini* Losina-Losinsky 1929, from the Sea of Japan.

Of the above, numbers 2, 3 and 5 were transferred to the genus *Anoplodactylus* by Loman in 1912 and number 4 by Losina-Losinsky in 1929. In tabulating the known species of *Halosoma*, however, Losina-Losinsky omitted

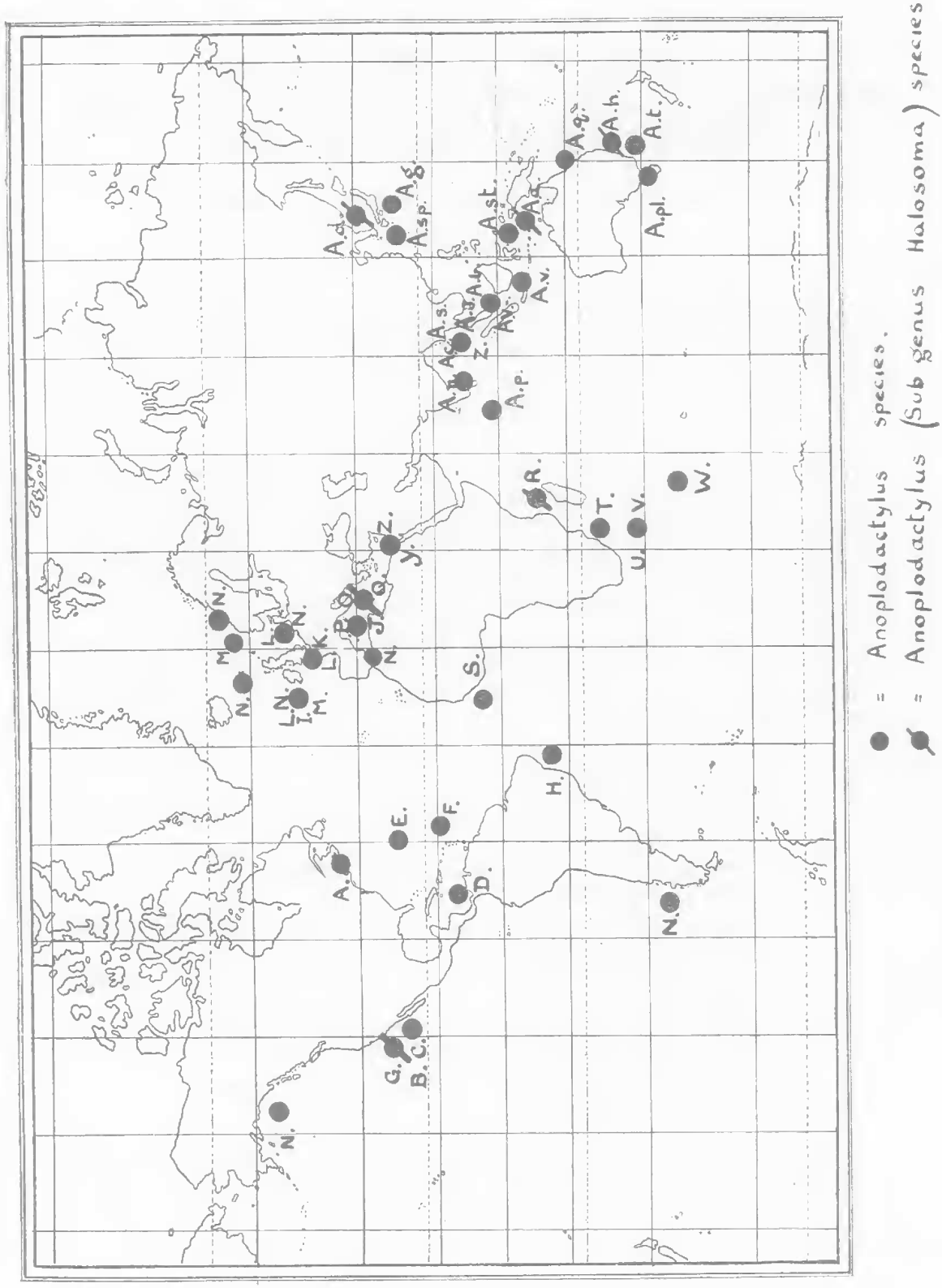

Fig. 1.—Map of the world showing the distribution of the known species of *Anoplodactylus*.

Flynn's species *A. haswelli* (1918). Of the remaining species, eight, including the genotype *A. lentus* (Wilson 1878), have been recorded from North American waters and two from those of South America, although one example in each case is the widespread species *A. petiolatus*. Nine species are known from Africa, but of these one is again *A. petiolatus* from the Algerian coast and another *A. saxatilis* from Port Said, the latter species also occurring off the Indian coast. Only three species (including the new species described below) have been taken in Australian waters and of these one, *A. plumulariae* (von Lendenfeld 1883) is only known from immature forms. Eight species are recorded from the waters of India and the Malay Archipelago and one from near Japan.

The members of the genus *Anoplodactylus* appear to be mainly warm water forms, the great majority having been taken in tropical or subtropical regions (Fig. 1). The European species show the greatest extension into colder latitudes and the known distribution of the most northerly species (*A. petiolatus*) is particularly interesting. Stevensen (1933) has recorded *A. petiolatus* from as far north as 69° and it may be that this northern extension has been made possible by the warmer waters of the Gulf Stream Drift. It is of interest also to note that this northerly region from which *A. petiolatus* has been taken closely corresponds to the isotherm of maximum positive anomaly, where the air temperature may be as much as 40° F. above the mean temperature for that latitude.

LIST OF KNOWN ANOPLODACTYLUS SPECIES AND KEY TO THEIR DISTRIBUTION.

A. lentus (genotype) (Wilson) 1878	A.	*A. investigatoris* (Calman) 1923	A. n.
A. petiolatus (Kroyer) 1844	N.	*A. cribellatus* (Calman) 1923	A. c.
A. typhlops (Sars) 1891	M.	*A.* species like *petiolatus* (Calman) 1923	A. s.
A. pygmaeus (Hodge) 1864	L.	*A. insignis* (Hoek) 1881	H.
A. (*Halosoma*) *robustus* (Dohrn) 1881	O.	*A. insignis bermudensis* (Cole) 1904	E.
A. angulatus (Dohrn) 1881	P.	*A. oculatus* (Carpenter) 1904	I.
A. virescens (Hodge) 1864	K.	*A.* (*Halosoma*) *exiguus* (Dohrn) 1881	Q.
A. stylops (Loman) 1908	A. st.	*A. portus* (Calman) 1927	Y.
A. digitatus (Bohm) 1879 (redescribed by Loman 1908)	A. b.	*A. neglecta* (Hoek) 1898	W.
		A. plumulariae (von Lendenfeld) 1883	A. pl.
A. brevicollis (Loman) 1908	A. j.	*A. massiliensis* (Bouvier) 1916	J.
A. versluysi (Loman) 1908	A. v.	*A. maritimus* (Hodgson) 1915	F.
A. (*Halosoma*) *anarthrus* (Loman) 1908	A. a.	*A. californicus* (Hall) 1915	B.
A. (*Halosoma*) *tubiferus* (Haswell) 1884	A. t.	*A. parvus* (Giltay) 1934	D.
A. gestiens (Ortmann) 1891	A. g.	*A.* Species (immature) (Ohshima) 1933	A. sp.
A. aculeatus (Mobius) 1902	V.	*A.* (*Halosoma*) *derjugini* (Losina-Losinsky) 1929	A. d.
A. spinosus (Mobius) 1902	U.		
A. erectus (Cole) 1904	C.	*A.* (*Halosoma*) *virid-intestinalis* (Cole) 1904	G.
A. pulcher (Carpenter) 1907	A. p.		
A. pelagicus (Flynn) 1928	T.	*A.* (*Halosoma*) *lappa* (Bohm) 1879	R.
A. polignaci (Bouvier) 1914	S.	*A. longicollis* (Williams) 1939	A. q.
A. saxatilis (Calman) 1923	Z.	*A.* (*Halosoma*) *haswelli* (Flynn) 1918	A. h.

ANOPLODACTYLUS LONGICOLLIS sp. nov.

Locality.—"Lindeman Island, Whitsunday Passage, Queensland, Australia. Among bushy algae and hydroids. (M. Ward)." 2 ♂.

Description.—Body elongated and slender, the lateral processes separated by about twice their diameter, last two segments practically coalesced, the suture line being barely visible. Ocular tubercle very large, pointed and directed forwards. Proboscis dilated in its proximal third and slightly swollen at tip. Abdomen considerably longer than last pair of lateral processes, directed vertically.

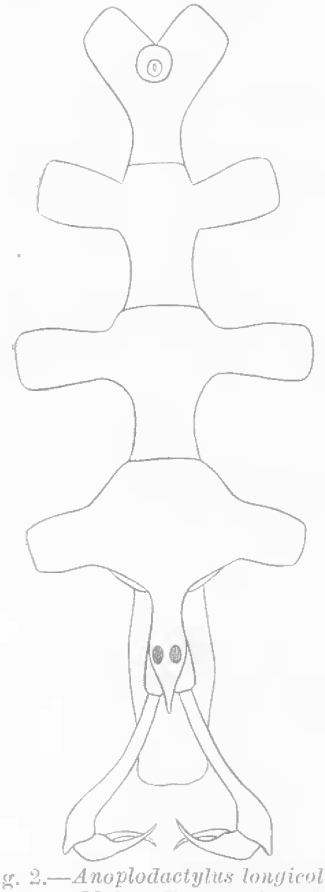

Fig. 2.—*Anoplodactylus longicollis*, sp. n., Male. Dorsal view, legs omitted (× 33⅓).

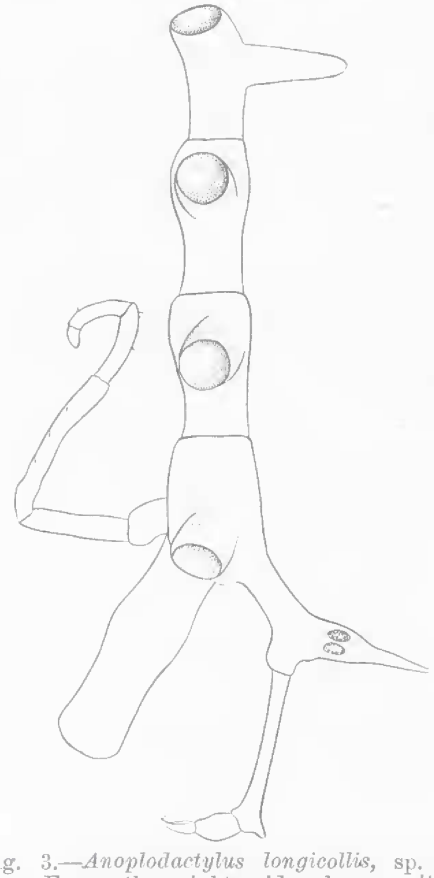

Fig. 3.—*Anoplodactylus longicollis*, sp. n., Male. From the right side, legs omitted (× 33⅓).

Chelophores fairly slender, scape long but not equal to length of cephalic segment owing to the length of the neck. Fingers delicate, very strongly curved distally, with a few scattered spines.

Legs slender, second coxa not quite as long as first and third together. Femur equal to first tibia and provided with a long terminal process ending in a long spine. First tibia longer than second tibia, also provided with spinous

terminal process, the latter being much shorter than that of the femur. Propodus with well marked basal projection bearing one large unpaired spine followed by one pair. Sole of propodus with a series of smaller spines extending nearly to base of claw. Claw long and slender, auxiliaries very small. Second coxa of last three legs with small bluntly pointed process. First leg bluntly rounded in this region but with no distinct process. Femora of all legs with two large cribriform gland openings, symmetrically placed on each side of middle of femur Ovigers six jointed of the characteristic *Anoplodactylus* form, third joint longest, sixth joint smallest, with a few spines but no terminal claw.

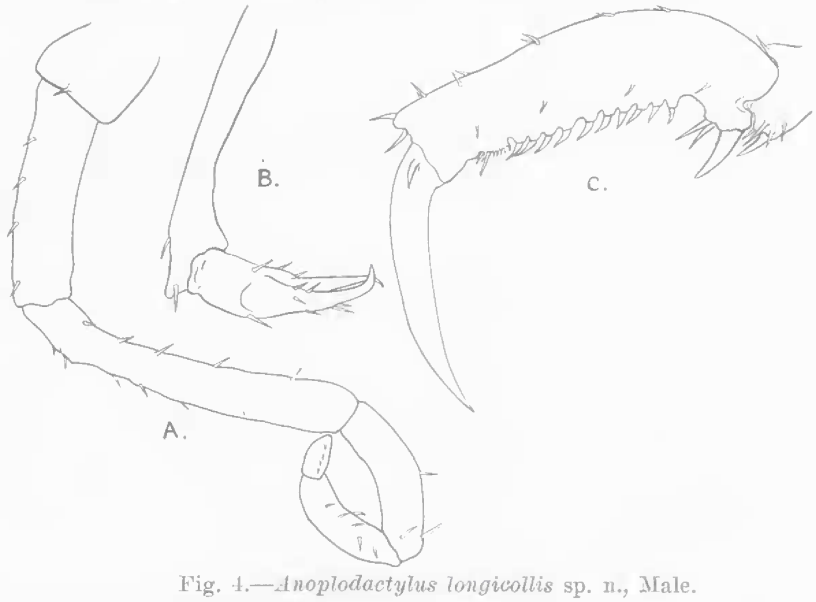

Fig. 4.—*Anoplodactylus longicollis* sp. n., Male.
A. Right Oviger (× 57⅓).
B. Right Chelophore (× 66⅔).
C. Tarsus and Propodus of first right leg (× 62⅔).

MEASUREMENTS, IN MM.

Length of proboscis (from the side)	0·82
Greatest width of proboscis	0·29
Length of trunk	1·9
Length of abdomen	0·36
Length of scape of chelophore	0·61
Height of ocular tubercle (from dorsal base of chelophore)	0·51
Fourth right leg:—	
First coxa	0·364
Second coxa	0·666
Third coxa	0·375
Femur	1·51
First tibia	1·51
Second tibia	1·41
Tarsus and propodus	0·82
Length of great claw	0·54

(The measurements of the tarsus and propodus and of the great claw are taken from the first leg as these regions are foreshortened in the microscopic preparation of the fourth leg.)

Remarks.—Anoplodactylus longicollis is related to *A. cribellatus* (Calman 1923, p. 285) and *A. oculatus* (Carpenter 1905). There is a very strong resemblance to the latter, particularly in the neck region, in the shape and size of the ocular tubercle, and also in the form of the proboscis. The resemblance to *A. cribellatus* is not so close although the widely separated lateral processes and the fusion of the last two segments is common to both. The three species differ from each other in the following points. The lateral processes are more widely separated in *A. longicollis* than in *A. cribellatus* or *A. oculatus*. The proportion of the limb joints is different in all three species. The heel of the propodus

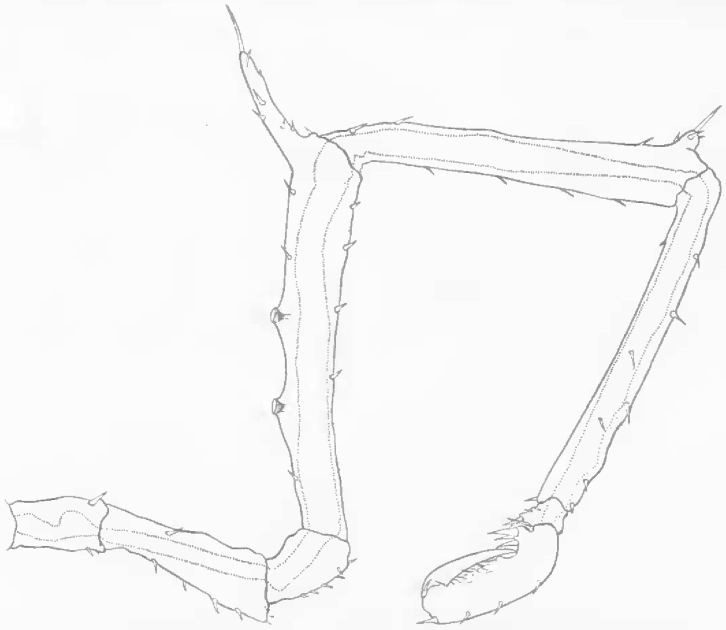

Fig. 5.—*Anoplodactylus longicollis*, sp. n., Male. Fourth right leg (× 32).

in *A. longicollis* has only one unpaired spine whereas in the other two species there are two. The femoral cement gland openings are very large and only two in number in *A. longicollis* while there are five in *A. oculatus* and fifteen in *A. cribellatus*. There is no end claw to the oviger in either *A. longicollis* or *A. cribellatus*. Carpenter figures and describes one in the case of *A. oculatus*. I believe this to be the only case on record of an *Anoplodactylus* species possessing such a structure. The scape of the chelophore is considerably shorter than the cephalic segment in *A. longicollis*, whilst in *A. oculatus* and *A. cribellatus* the reverse is the case. The genital process is distinct as a definite process in *A. oculatus*, in *A. longicollis* it is a pointed hump. The process at the distal end of the femur is present in *A. oculatus* and *A. longicollis*, although it is better developed in the latter. *A. cribellatus* has no such process. Neither *A. oculatus* or *A. cribellatus* shows any process comparable to that found at the extremity of the first tibia in *A. longicollis*.

Type in Queensland Museum, Reg. No. W. 974.

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(For more complete list see Schimkewitsch 1930 or Bouvier 1923.)

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